

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A method for identifying a protein which has an elevated binding activity towards phosphorylated alpha-1,4-glucans, compared to non-phosphorylated alpha-1,4 glucans, wherein comprising
  - a) incubating protein extracts in preparations separate from one another ~~are incubated~~ with
    - i. phosphorylated alpha-1,4-glucans and
    - ii. non-phosphorylated alpha-1,4-glucans,
  - b) dissolving proteins specifically bound to the
    - i. phosphorylated alpha-1,4-glucans from step a) i and
    - ii. proteins specifically bound to the non-phosphorylated alpha-1,4-glucans from step a) ii~~are dissolved~~ in preparations separate from one another and
  - c) identifying proteins ~~are identified~~ which exhibit an elevated binding activity towards phosphorylated alpha-1,4-glucans used in step b) i, compared to non-phosphorylated alpha-1,4-glucans used in step b) ii.
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Currently Amended) An isolated protein obtainable by ~~a method according to one of claims 1 to 4~~ the method of claim 1.
6. (Currently Amended) A method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, wherein
  - a) identifying a protein ~~is identified~~ by a method according ~~one of claims 1 to 4~~ to claim 1,

- b) determining amino acid sequences coding for the protein identified according to step a) ~~are determined~~ and
  - c) identifying nucleic acid molecules ~~are identified~~ using the amino acids determined according to step b).
- 7. (Original) The method according to claim 6, wherein nucleic acid oligonucleotides based on the amino acid sequence determined according to step b) are manufactured to identify said nucleic acid molecule according to step c).
- 8. (Currently Amended) The method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, ~~wherein comprising~~
  - a) identifying a protein ~~is identified~~ by a method according ~~one of claims 1 to 4 to claim 1~~,
  - b) producing antibodies which react specifically with the protein identified according to step a) ~~are produced~~ and
  - c) identifying nucleic acid molecules ~~are identified~~ using the antibodies produced according to step b).
- 9. (Currently Amended) An isolated nucleic acid molecule obtainable by a method according to ~~one of claims 6, 7 or 8~~ claim 6.
- 10. (Currently Amended) A genetically modified plant cell, ~~characterised in that it which~~ exhibits an elevated enzymatic activity of a protein according to claim 5 ~~or a protein which can be obtained by a method according to one of claims 1 to 4~~ compared to corresponding wild type plant cells which have not been genetically modified.
- 11. (Original) The genetically modified plant cell according to claim 10 which is a maize, rice, wheat, rye, oats, barley, cassava, potato, sweet potato, sago, mung bean, banana, pea, *Arabidopsis*, *curcuma* or *sorghum* plant.

12. (Currently Amended) A genetically modified plant ~~characterised in that~~ wherein the genetic modification ~~consists in the introduction~~ comprises of at least one foreign nucleic acid molecule according to claim 9 ~~or which can be obtained by a method according to one of claims 6, 7 or 8~~ introduced into the genome of the plant.
13. (Original) The genetically modified plant cell according to claim 12, which synthesises a modified starch compared to starch from corresponding wild type plant cells.
14. (Original) The genetically modified plant cell according to claim 13, which synthesises a modified starch which has an elevated content of starch phosphate and/or a modified phosphate distribution compared to starch from corresponding wild type plants.
15. (Currently Amended) The plant cell according to claim 14, wherein the modified starch is ~~characterised in that~~ it exhibits an elevated content of phosphate covalently bound to the starch in the C-3 position of the glucose molecule compared to starch from corresponding wild type plant cells.
16. (Currently Amended) A plant ~~containing~~ comprising genetically modified plant cells according to ~~one of claims 10 to 15~~ claim 10.
17. (Original) The plant according to claim 16, which is a maize, rice, wheat, rye, oat, barley, cassava, potato, sago, mung bean, pea or sorghum plant.
18. (Original) The plant according to claim 17, which is a maize or wheat plant.
19. (New) A method for identifying a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity and requires phosphorylated alpha-1,4-glucans as substrate, comprising
  - a) incubating protein extracts with phosphorylated alpha-1,4-glucans,
  - b) dissolving proteins specifically bound to the phosphorylated alpha-1,4-glucans from step a),
  - c) incubating proteins obtained according to step b) respectively with

- i. ATP and phosphorylated alpha-1,4-glucans and
- ii. ATP and non-phosphorylated alpha-1,4-glucans

in preparations separated from one another,

- d) examining the respective alpha-1,4-glucan obtained after incubation in step c) i or step c) ii for introduction of further phosphate groups and
- e) identifying proteins which in the incubation preparation according to c) i have introduced significant quantities of phosphate groups into alpha-1,4-glucans and in the incubation preparation according to c) ii have introduced no significant quantities of phosphate groups into alpha-1,4-glucans.

20. (New) The method according to claim 19, wherein the protein with alpha-1,4-glucan phosphorylating enzymatic activity uses phosphorylated starch as substrate.

21. (New) The method according to claim 20, wherein the protein with alpha-1,4-glucan phosphorylating enzymatic activity originates from a plant.

22. (New) An isolated protein obtainable by the method claim 19.

23. (New) A method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, comprising

- a) identifying a protein by a method according to claim 19,
- b) determining amino acid sequences coding for the protein identified according to step a) and
- c) identify nucleic acid molecules using the amino acids determined according to step b).

24. (New) The method according to claim 23, wherein nucleic acid oligonucleotides based on the amino acid sequence determined according to step b) are manufactured to identify said nucleic acid molecule according to step c).

25. (New) The method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, comprising

- a) identify a protein by a method according to claim 19,
- b) producing antibodies which react specifically with the protein identified according to step a) and
- c) identify nucleic acid molecules using the antibodies produced according to step b).

26. (New) An isolated nucleic acid molecule obtainable by a method according to claim 23.

27. (New) A genetically modified plant cell, which exhibits an elevated enzymatic activity of a protein according to claim 22 compared to corresponding wild type plant cells which have not been genetically modified.

28. (New) The genetically modified plant cell according to claim 27 which is a maize, rice, wheat, rye, oats, barley, cassava, potato, sweet potato, sago, mung bean, banana, pea, *Arabidopsis*, *curcuma* or *sorghum* plant.

29. (New) A genetically modified plant wherein the genetic modification comprises the introduction of at least one foreign nucleic acid molecule according to claim 26 into the genome of the plant.

30. (New) The genetically modified plant cell according to claim 29, which synthesises a modified starch compared to starch from corresponding wild type plant cells.

31. (New) The genetically modified plant cell according to claim 30, which synthesises a modified starch which has an elevated content of starch phosphate and/or a modified phosphate distribution compared to starch from corresponding wild type plants.

32. (New) The plant cell according to claim 31, wherein the modified starch exhibits an elevated content of phosphate covalently bound to the starch in the C-3 position of the glucose molecule compared to starch from corresponding wild type plant cells.

33. (New) A plant comprising genetically modified plant cells according to claim 27.

34. (New) The plant according to claim 33, which is a maize, rice, wheat, rye, oat, barley, cassava, potato, sago, mung bean, pea or sorghum plant.
35. (New) The plant according to claim 34, which is a maize or wheat plant.